

**Mayo Clinic News Network**

**Title: Proton Beam Grand Opening / Date: May 2015**

Intro: Mayo Clinic will soon begin treating cancer patients with its new, state of the art, Proton Beam Therapy facility. The technology delivers radiation oncology in a way that promises lower side effects and higher cure rates, often for patients whose cancers cannot be treated safely any other way. Here's Dennis Douda for the Mayo Clinic News Network.

Video	Audio
<b>Total running time [approx. 5:00]</b>	<b>/// NATS</b>
<b>David Gerfast speaking</b>	<b>“When I got him, he was just a baby. Now he’s huge.”</b>
<b>Dennis Douda speaking</b>	David Gerfast is an animal lover.
<b>David Gerfast speaking</b>	<b>“That’s my buddy Max. He’s a lap dog.”</b>
<b>Dennis Douda speaking</b>	He’s a big time sports fan. And... a fighter.
<b>Title: Cindy Gerfast David’s Mother</b>	<b>“He says, Mom, I got this. I’m gonna beat this. I got this. And to hear that out of a 12-year old is just amazing to me. As I’m just balling like a baby, not knowing how to take this, that my boy has cancer.” (pause a beat)</b>
<b>David Gerfast speaking</b>	<b>“Didn’t hurt at the time. Not ‘til after the game.”</b>
<b>Cindy Gerfast speaking</b>	<b>“Well, he was playing football, 7<sup>th</sup> grade football game and he got hurt. So they ended up doing a full MRI all the way up into his neck and that’s when they found the tumor.”</b>
<b>Dr. Michelle Clarke speaking</b>	<b>“The tumor is this white mass that’s both in front of the spine, in the middle of it and pushing on the spinal cord, as well.”</b>
<b>Dr. Michelle Clarke speaking</b>	<b>“David had an extraosseous chordoma, which is a slow-growing, but relentless, tumor.”</b>
<b>Dennis Douda speaking</b>	Mayo Clinic neurosurgeon Dr. Michelle Clarke removed David’s tumor and reconstructed the severe damage it had caused to his vertebrae, but his doctors worried stray tumor cells might still pose a threat.
<b>Title: Dr. Michelle Clarke Mayo Clinic Neurosurgery</b>	<b>“For this type of tumor, there aren’t a lot of other treatments. Once we realized we could not take it out in one piece, we knew that David had to go for Proton Beam therapy.”</b>
<b>Dr. Sameer Keole speaking</b>	<b>“Proton therapy is a massive step forward in radiation therapy.”</b>
<b>Title: Dr. Robert Foote Chair of Radiation Oncology</b>	<b>“X-rays were discovered back in 1896, and one of the first uses was the treatment of cancer. Destroying the DNA, the genetics of the cancer cells that prevent them from growing and spreading and eventually cause them to die.”</b>

Dr. Sameer Keole speaking	“They’ll damage the tumor, but they can also potentially damage a lot of healthy tissue on its track to and from. We can’t control where X-rays stop. Protons are completely different.”
Dennis Douda speaking	Which explains the excitement surrounding Mayo Clinic’s new 180-million dollar Proton Beam facility. To understand how it all works, we start with the protons, which are basically hydrogen atoms from water that are given a positive charge. That charge allows them to be controlled by a sophisticated series of magnets, first in a device called a synchrotron, which accelerates the protons up to two-thirds the speed of light, then fires them down the line to any one of four patient treatment rooms. Doctors can control how deeply protons penetrate the body by how much energy they give them.
Dr. Sameer Keole speaking	“They’ll go a set distance, they’ll stop, and you’ll have a sudden explosion of the energy and so you’ll treat the tumor but very little normal tissue surrounding it.”
Dennis Douda speaking	Mayo Clinic’s Proton Beam facility features spacious treatment rooms .. with robotic patient tables... and 3-story tall, 110 ton gantries that rotate around the patient to direct the proton beam.
Dr. Robert Foote speaking	“Between the 180-degree gantry and the robotic patient positioner, we can send the radiation beam into the patient and hit the target from, from any angle possible.”
Dennis Douda speaking	Allowing doctors to sculpt the radiation therapy even more precisely, in order to protect healthy tissues surrounding the cancer, is technology called - Intensity Modulated Pencil Beam Scanning.
Dr. Robert Foote speaking	“The smaller the beam, the more accurate and precise it is. If you think of a tumor like a picture in a coloring book, the sharper your crayon is, the easier it is to stay within the lines of the colors. And we’ll have the smallest size beam available in the world, the most accurate, most precise.”
Dennis Douda speaking	And, once again, the <i>properties</i> of Protons allow them to be delivered in a way that maximizes their lethal impact on cancerous tumors.
Dr. Robert Foote speaking	“Since they have a positive electrical charge, we can use magnets to move the beam back and forth and up and down to irradiate the entire volume of the tumor.”
Dr. Sameer Keole speaking	“Sometimes we’ll give more dose than you could with X-rays and that allows us to cure cancers that you couldn’t with X-ray therapy.”

<b>Dennis Douda speaking</b>	Which brings us back ... to David.
<b>David Gerfast speaking</b>	<b>“Takes like, 10-minutes. It’s really quick. It’s awesome.”</b>
<b>Dennis Douda speaking</b>	With a fitted mask to immobilize his head... David received 43 treatments. His radiation exposure plan shows how the highest dose was concentrated at the tumor site, while vital arteries, his spinal cord and esophagus were avoided as much as possible.
<b>Dr. Sameer Keole speaking</b>	<b>“On average, we can drop the dose to the normal, healthy tissues by typically 70 to 80 percent.”</b>
<b>Bell Rings</b>	<b>///Bell Rings</b>
<b>Dennis Douda speaking</b>	8 weeks later the finality bell signaled David’s last treatment. And a family’s gratitude for the hope delivered by a beam of protons.
<b>Cindy Gerfast speaking</b>	<b>“Oh I think it’s phenomenal, it’s amazing how it has come this far.”</b>
<b>Dennis Douda speaking</b>	For the Mayo Clinic News Network, I’m Dennis Douda.

Anchor tag: Both Dr. Foote and Dr. Keole (kee-OH-lee) say pediatric patients may have the most to gain from Proton Beam therapy, as growing, developing tissues of children are particularly sensitive to unintended radiation damage.

Mayo Clinic’s Proton Beam facility at its campus in Rochester, Minnesota will begin treating patients in June. A second facility is under construction at its campus in Scottsdale, Arizona is scheduled to open in early 2016.

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